xylem
Let's Solve Water

IQ SensorNet

CONTINUOUS PROCESS MONITORING & CONTROL

YSI
a xylem brand

IQSN CATALOG
W60-05

Table of Contents

YSI is your trusted partner for your municipal instrumentation and monitoring needs.

For 70 years, YSI has manufactured and designed sensors, instruments and solutions for water quality monitoring. We offer a full range of water quality instrumentation designed for monitoring and testing municipal water. They are field-tough, lab-smart, and applicable throughout your wastewater facility. From the lab to spot sampling to continuous monitoring and control, YSI's instruments can help you throughout your process, from influent to receiving waters.

YSI instruments are backed by our technical team with years of experience, and who are committed to helping our customers improve their process.

Today, the Yellow Springs, Ohio manufacturing facility employs over 200 people who are dedicated to designing and building reliable water quality instrumentation that meets the needs of our municipal customers. And now more than ever, municipalities demand a partner with the added ability to improve their operational efficiency by providing innovative solutions for continuous monitoring and process control.

The YSI IQ SensorNet product line is the best solution for the wastewater industry... from small to large facilities. The network-based system is all about ease, scalability and performance. Our instruments can help you with process optimization, increased efficiency, lower energy use and compliance reporting. Monitor influent, reduce energy use during the aeration process, monitor effluent or control any part of the process such as biological nutrient removal, phosphorus removal or returned activated sludge lines. Whatever your application needs are, we are here to support your good work with our extensive network of experts all over USA.

Thank you for your interest in YSI. We look forward to partnering with you.

Laura St. Pierre
YSI Process Product Segment Manager

Connect with YSI

Application Notes **ysi.com/ww**

Learn how municipalities are benefitting from YSI instrumentation

- Scioto Reserve Water Reclamation Facility Meets Discharge Limits for Total Inorganic Nitrogen with the IQ SensorNet | A619
- Monitoring Orthophosphate for Reduced Chemical Costs with the YSI IQ SensorNet | A620
- Spring Creek Plant Finds Operational Efficiency with SCADA and the YSI IQ SensorNet System | A624
- Automating Orthophosphate Monitoring Cuts Ferric Chloride Costs by Over 25% | A635
- Lightning Strikes and the YSI IQ SensorNet System is Still Ticking | A628
- Getting the Waste out of Wastewater | A636

White Papers **ysi.com/ww**

- How to Control Activated Sludge in Wastewater with Online Sensors
- Implementation of Solids Retention Time in Wastewater
- How to Control Denitrification Using Online Nitrate Sensors
- Best Practices for Wastewater Process Monitoring of Ammonium & Nitrate with Ion Selective Electrode (ISE) Sensors
- UV Vis Spectrophotometric Sensors

Videos

visit video.ysi.com

View product demos, field studies and instrument installations.

IQ SENSOR NET

visit ysi.com/IQSN

Learn more about applications, parameters and building an IQ SensorNet system to monitor your facility.

YSI Blog

To subscribe: bit.ly/YSIconnect

To read the blog: YSI.com/blog

Connect with Us

Facebook
facebook.com/myYSI

Twitter
twitter.com/ysiinc

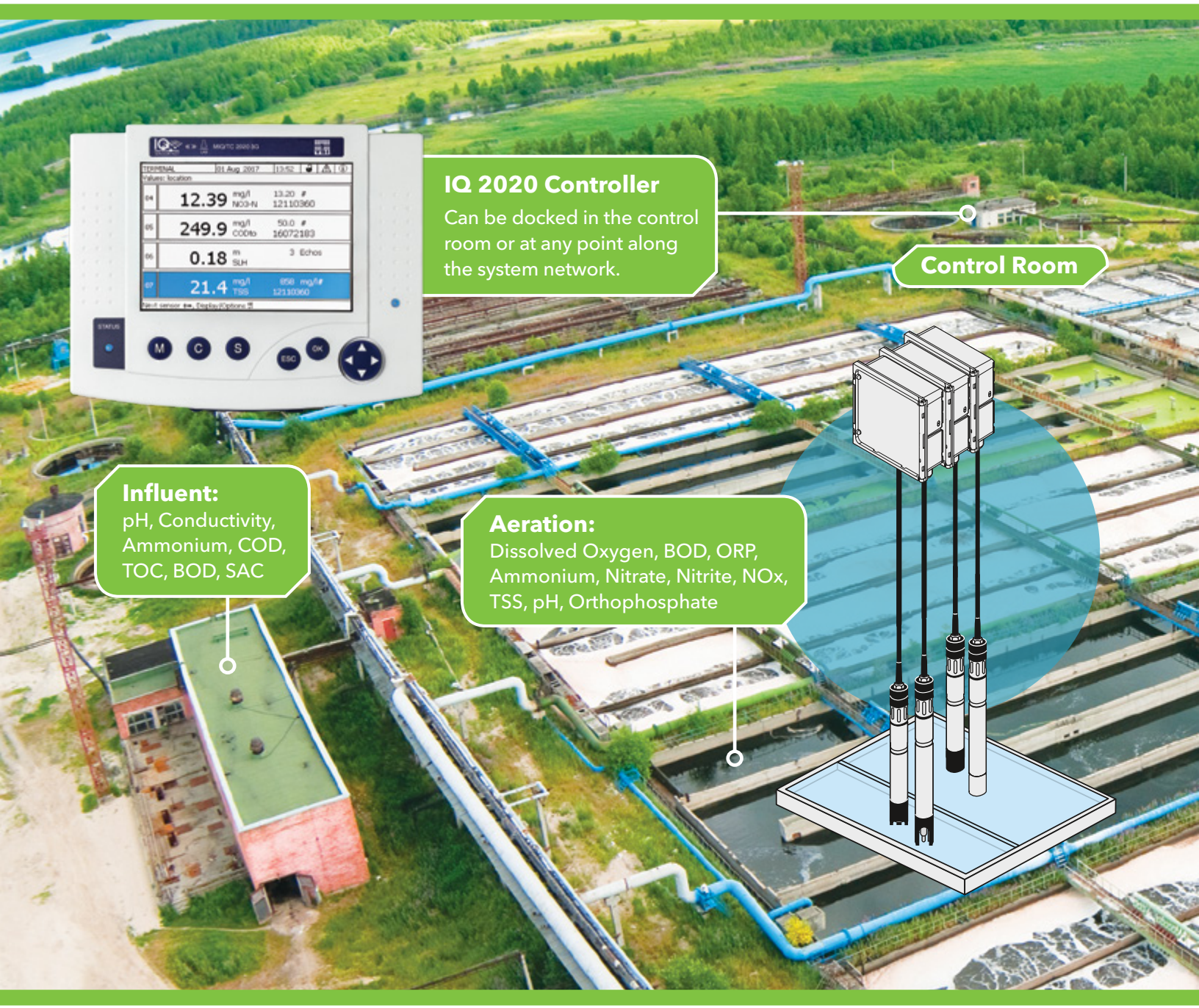
LinkedIn
linkedin.com/company/ysi

YouTube
youtube.com/ysiinc

Pinterest
pinterest.com/myYSI

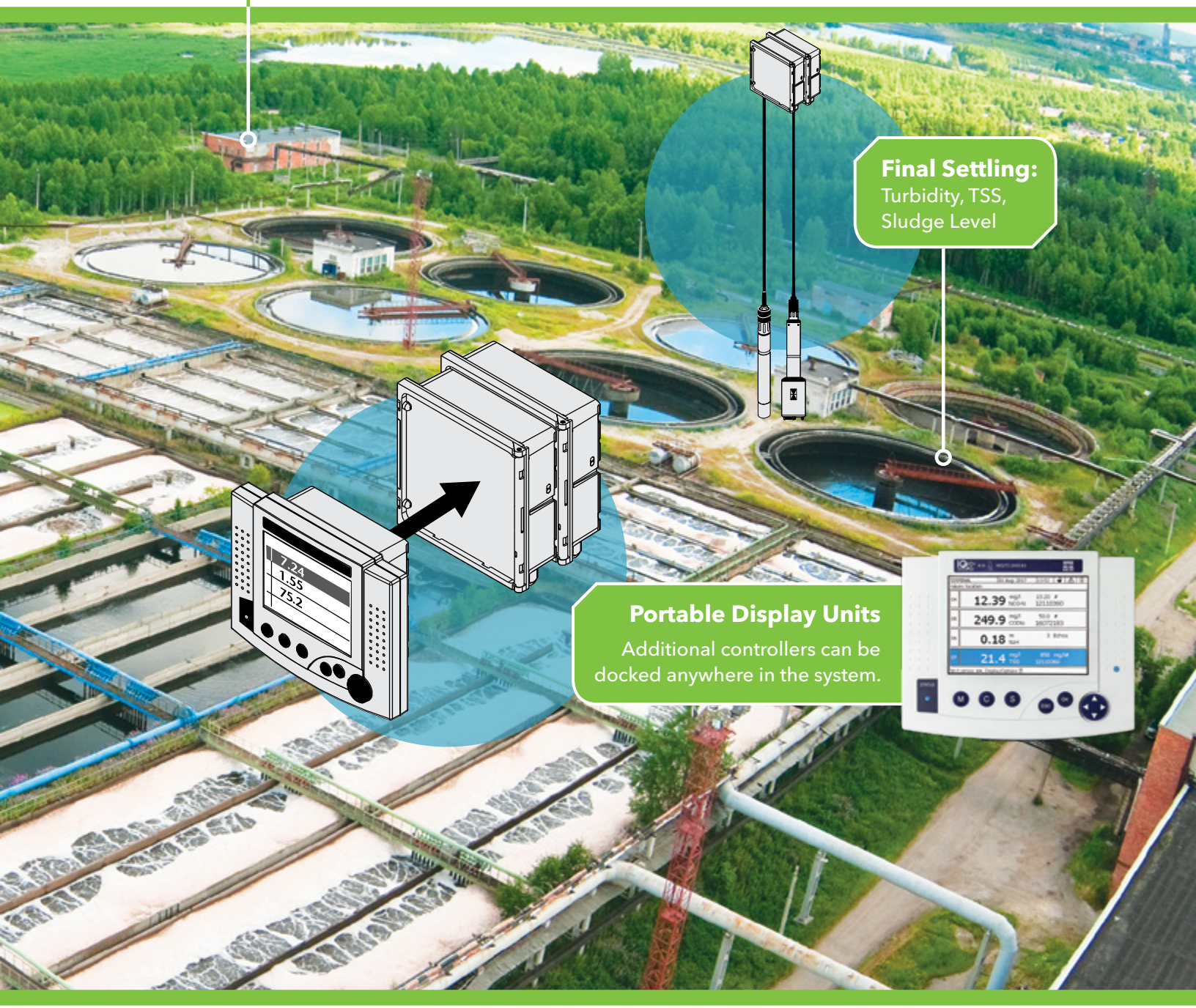
Instagram
instagram.com/ysiinc

System-wide Process Monitoring & Control



IQ SENSOR NET

Disinfection / Effluent:
Ammonium, Nitrate, Nitrite, UVT-254, Orthophosphate, pH, Conductivity, Dissolved Oxygen, Turbidity, ORP, COD, TOC, DOC, BOD, SAC



Final Settling:
Turbidity, TSS, Sludge Level

Portable Display Units
Additional controllers can be docked anywhere in the system.

IQ SensorNet
2020 3G Controller

System 2020 3G Features

- Display up to 20 parameters plus temperature, in any combination
- Expandable network
- Centralized power supply along entire network
- LED status lights for quick visualization of system functionality
- Numerous relays and analog outputs may be selected
- Change or move sensors at any time with ease
- Integrates into existing PLC and SCADA systems
- Communications via modem, radio transmission, PROFIBUS, MODBUS RTU, MODBUS TCP/IP, Ethernet IP
- Digital Color Display

Parameters

- Ammonium
- BOD*, COD*, DOC*, SAC*, TOC*
- Chloride
- Conductivity
- Dissolved oxygen (optical or electrochemical)
- Nitrate
- Nitrite*
- NOx*
- ORP
- Orthophosphate
- pH
- Potassium
- Salinity
- Sludge level
- Specific conductance
- Temperature
- TSS*
- Turbidity*
- UVT-254*

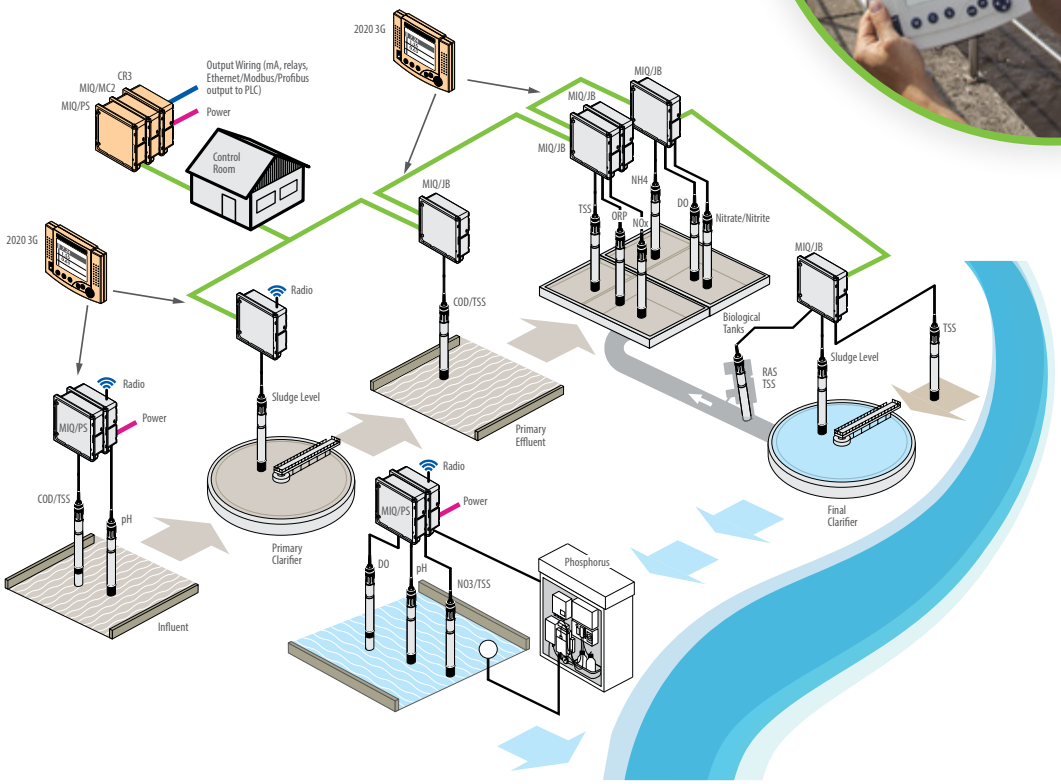
(*ultrasonic cleaning for sensors)

2020 3G Terminal Controller Specifications

Certifications	ETL, IP-66, CE, cETL (conforms with relevant UL and Canadian standards)
Integrated Lightning Protection	Yes, according to EN 61326 enhanced overvoltage protection
Power	Directly via IQ SensorNet when coupled to an MIQ module; one 120V power supply
Datalogging	Data memory for up to 525,000 data sets
Display	Resolution 320 x 240 pixels, visible area 4.49 x 3.39 in (114 x 86mm); Backlit, Graphic Color Display
Interfaces	USB, via modem, radio transmission, LAN, Ethernet IP, MODBUS TCIP/IP & RTU, PROFIBUS, PROFINET
Operating Temperature	-4 to 131 °F (-20 to 55 °C) Storage Temperature: -13 to 149 °F (-25 to 65 °C)

Improve operational efficiency with continuous data.

With a scalable solution, the 2020 3G allows for the measurement of up to 20 parameters. Add sensors at any time and at any location or exchange them with ease. This completely modular plug-and-play system allows you to monitor and control the process in your wastewater facility continuously and accurately.



Benefits of IQ SensorNet

- One cable for power and communications; simplifies installation
- 3-year instrument warranty; factory-calibrated DO cap with 2-year warranty
- Modular expansion - add sensors and communication outputs at any time (1 to 20 parameters per network)
- UltraClean® ultrasonic cleaning; prevents fouling
- System redundancy for backup control and power
- Easily stack modules without extra wiring
- USB interface
- DC optional back up power
- System-wide lightning protection

IQ SensorNet
282/284 Controller

System 282/284 Features

- Connect 1-4 digital sensors for a variety of parameters
- One cable for power and communications
- UltraClean® ultrasonic cleaning
- Numerous relays and analog outputs may be selected
- Lightning Protection
- 3-year instrument warranty
- USB interface and data logging capabilities
- Easy-to-read digital color display
- Communications via modem, radio transmission, PROFIBUS, MODBUS RTU, MODBUS TCP/IP, Ethernet IP

Parameters

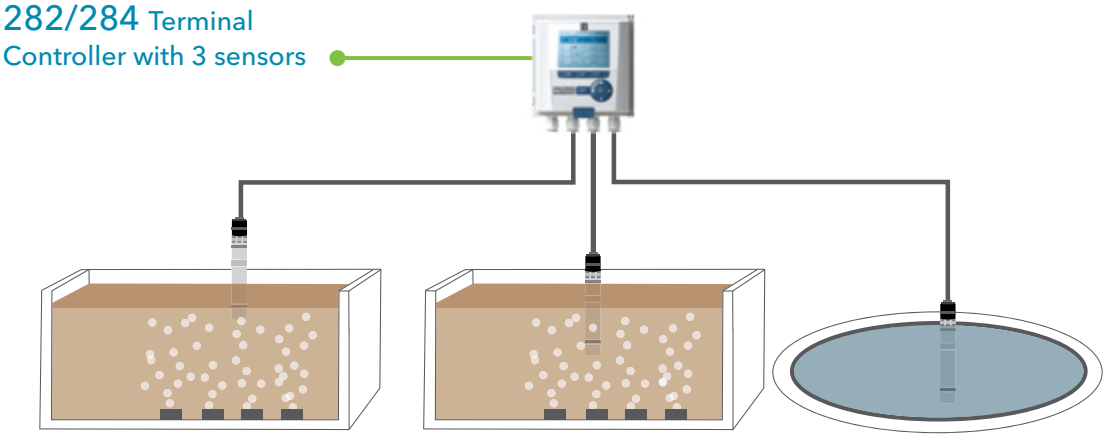
- Ammonium
- BOD*, COD*, DOC*, SAC*, TOC*
- Chloride
- Conductivity
- Dissolved oxygen (optical or electrochemical)
- Nitrate
- Nitrite*
- NOx*
- ORP
- Orthophosphate
- pH
- Potassium
- Salinity
- Sludge level
- Specific conductance
- Temperature
- TSS*
- Turbidity*
- UVT-254*

(*ultrasonic cleaning for sensors)

282/284 Terminal Controller Specifications

Certifications	ETL, cETL (conforms with relevant UL and Canadian standards), CE
Integrated Lightning Protection	EN 61326 enhanced overvoltage protection for entire system
Power	100 to 240 VAC/DC (50-60 Hz), 24 VAC/DC
Connectable Sensors	All IQ SensorNet sensors are available
Display	Resolution 320 x 240 pixels, visible area 3.03 x 2.52 in (77 x 64mm); Backlit, Graphic Color Display
Operating Temperature	-4 to 131°F (-20 to 55°C)
Interfaces	USB & data logger (standard); options for PROFIBUS (RS485), MODBUS (RS485), Ethernet/IP, MODBUS TCP, PROFINET (RJ45), RJ45 for remote control

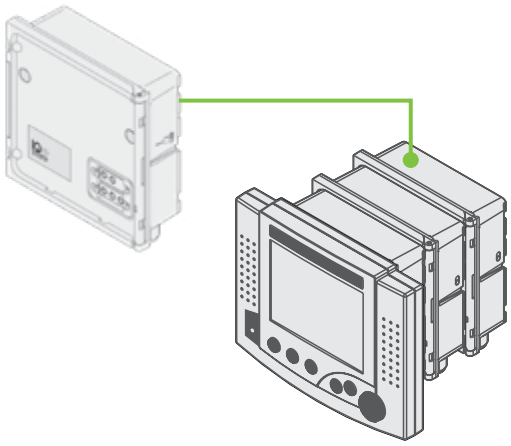
The IQ SensorNet 282 and 284 controllers can connect to 1 - 4 sensors, allowing up to 20 parameters to be measured. The network can easily be expanded with additional measuring locations and communication outputs. The 282 and 284 are compatible with all IQ SensorNet sensors including reliable Ion Selective Electrodes, a wide range of UV VIS spectral sensors, wet chemistry analyzers, accurate dissolved oxygen and more.



IQ SensorNet Modules

IQ SensorNet modules provide a variety of functions for power, communications, outputs and controllers, in order to improve your system's efficiency. All modules can be installed anywhere in the system, either individually or in stacks.

Up to three modules can be connected to form a stack.



Module Options

	2020 3G (up to 20 parameters plus temperature)	284 (up to 4 sensors) 282 (up to 2 sensors) (up to 20 parameters, depending on sensor)
Controller Modules with communications	Microcontroller (MIQ/MC3), Profibus (MIQ/MC3-PR), Modbus (MIQ/MC3-MOD) All include Ethernet IP and Modbus TCP/IP. Microcontroller can be used as main or backup controller.	Select power supply and outputs when ordering 282/284. Here are some options. Many more available! • 1-2 sensors, 3 outputs, 3 relays. 110-240 VAC (DIQ/S 282-CR3) • 24 VAC or 24 VDC option (DIQ/S 282-CR3/24V) • 1-4 sensors, 6 outputs, 6 relays. 110-240 VAC (DIQ/S 284-CR6) • 24 VAC or 240 VDC option (DIQ/S 284-CR6/24V) • (3) relay and (3) current outputs (DIQ/S 282-CR3) • (6) current outputs (DIQ/S 284-CR6) • (6) relays (DIQ/S 284-CR6) • Profibus communication (DIQ/S 282-PR or DIQ/S 284-PR) • Modbus communication (DIQ/S 282-MOD or DIQ/S 284-MOD)
Power Supply Modules	110-240 VAC, 18 Watt (MIQ/PS) 24 VAC or 24 VDC (can be used as main or back-up) (MIQ/24V)	
Analog Output Modules	(3) relay and (3) current outputs (MIQ/CR3) (6) current outputs (MIQ/C6) (6) relays (MIQ/R6)	
Interface Modules	Profibus DPV1 with FDT/DTM communication (MIQ/3-PR) Modbus Communication (MIQ/3-MOD)	

Additional modules for network expansion

Magnetic Valve Modules	Valve module for automatically controlled cleaning (MIQ/CHV Plus)	Valve module for automatically controlled cleaning (DIQ/CHV and MIQ/CHV Plus)
Radio Communication Modules	Wireless connection (MIQ/WL PS Set, MIQ/WL PS)	Wireless connection (MIQ/WL PS Set, MIQ/WL PS)
Analog Input Modules	Current input module for connecting up to 2 "external" sensors via mA output signals (MIQ/IC2)	Current input module for connecting up to 2 "external" sensors via mA output signals (MIQ/IC2)
Extension Modules	4 IQ Connections – network or sensor (MIQ/JB). Repeater network to increase distance over 1 km (MIQ/JBR).	2 IQ Connections – network or sensor (DIQ/JB) 4 IQ Connections – network or sensor (MIQ/JB)

IQ SensorNet Sensors

Parameters	1 TriOxmatic®	2 FDO®	3 SensoLyt®	4 TetraCon®	5 VisoTurb®	6 ViSolid®	7 NitraVis® (TSS)	8 NitraVis NI®	9 CarboVis® (TSS)	10 NiCaVis®	11 NiCaVis NI®	12 NOx®	13 UVT-254	14 VARiON®	15 AmmoLyt®	16 NitraLyt®	17 IFL®	18 Alyza PO4	19 Alyza NH4
	Sensors / Analyzer																		
Ammonium														•	•				•
BOD (biochemical oxygen demand)									•	•	•								
Chloride**														•		•			
COD (chemical oxygen demand)									•	•	•								
Conductivity				•															
DO (electrochemical)	•																		
DO (optical)		•																	
DOC (dissolved organic carbon)									•	•	•								
Interface (Sludge) Level Measurement																	•		
Nitrate							•	•		•	•			•		•			
Nitrite								•			•								
NOx												•							
ORP*			•																
Orthophosphate																		•	
pH*			•																
Potassium**														•	•				
SAC (spectral absorption coefficient)									•	•	•		•						
Salinity				•															
TDS				•															
Temperature	•	•	•	•										•	•	•			
TOC (total organic carbon)*									•	•	•								
TSS					•	•	(•)		(•)										
Turbidity					•														
UVT-254 (SAC)									•	•	•		•						

*Choose pH or ORP for the SensoLyt

** The VARiON can measure either potassium or chloride, but not both.

IQ SensorNet Sensors
VisoTurb & ViSolid

All IQ SensorNet sensors are rugged, reliable digital sensors designed specifically for wastewater applications. Our sensors are detachable from the cable and can easily be switched out or moved. Just unscrew, move, and re-install.

UltraClean™ technology keeps sensor clean even after a 30-day deployment.

Without UltraClean™ technology

VisoTurb - Turbidity

- Multi-point factory calibration; no need to recalibrate; matrix adjustment is possible
- Ultrasonic cleaning with UltraClean™ technology prevents fouling and lowers maintenance
- Nephelometric measurement technology
- Sample discoloration does not affect measurements
- 2-year sensor warranty

VisoTurb & ViSolid Sensor Specifications

SensCheck	Continually monitors sensor functionality	
Range - VisoTurb	FNU, NTU, TEF: 0.05 to 4000 FNU	g/L TSS: 0.0001 to 400 g/L TSS
Range - ViSolid	mg/L TSS: 0.003 to 1000 g/L Practical Range: 0 to 400 mg/L 0 to 4000 mg/L 0 to 25,000 mg/L 0 to 40,000 mg/L	% TSS: 0.0003 to 100% Practical Range: 0.0003 to 4%

ViSolid ▼

VisoTurb ▼

ViSolid - TSS

- Multi-point factory calibration; no need to recalibrate; matrix adjustment is possible
- Ultrasonic cleaning with UltraClean™ technology prevents fouling and lowers maintenance
- Uses two measurement methods depending on concentrations - either scattered light or backscatter
- Class I, Division 2 option (group D T6 rated - must be used with MIQ/BB2)
- 2-year sensor warranty

ysi.com/VisoTurb ysi.com/ViSolid

IQ SensorNet Sensors
SensoLyt & TetraCon

SensoLyt Sensor Specifications

Temperature	32 to 140°F (0 to 60°C); ± 0.5° C			
Electrode Type	pH - ECA	pH - SEA and SEA-HP	pH - DWA	ORP mV - PtA
Application	Standard wastewater	Heavily polluted wastewater/high pressure (HP)	Drinking Water	Drinking water to heavily polluted wastewater
Range	2 to 12 pH units	SEA: 2 to 12 pH units SEA-HP: 4 to 12 pH units	0 to 14 pH units	±2000 mV
Accuracy	+/- 0.2 pH	+/- 0.2 pH	+/- 0.2 pH	+/- 20 mV

SensoLyt - pH, ORP

- SensCheck function monitors sensors
- Electrodes are protected
- Easily replace electrodes without tools
- Pre-amplified sensors
- Digital sensors store calibration
- 2-year sensor warranty; 6-month electrode warranty
- Replaceable combination electrode eliminates need for salt bridge
- Automatic temperature compensation

TetraCon Sensor Specifications

Operating Temperature	32 to 140°F (0 to 60°C)
Conductivity	Range: 10 µS to 500 mS/cm Accuracy: ±1.5% of reading without calibration ±0.7% of reading with calibration
Salinity	Range: 0 to 70 ppt
TDS	Range: 0 to 2000 mg/L
Cell Constant	K = 0.917 cm (in free solution) K = 0.933 cm (with flow thru adapter)
Temperature - Integrated NTC	Range: 23 to 140°F (-5°C to 60°C) Accuracy: ±0.5K

TetraCon - Conductivity, Salinity, TDS

- Digital sensors store calibrations
- 2-year warranty
- Stable, 4-electrode design

IQ SENSOR NET

IQ SensorNet Sensors
FDO & TriOxmatic

FDO Sensor Specifications

Interferences	None	
Calibration	Factory Calibration	
Operating Temperature	23 to 122°F (-5 to 50°C)	
Sensor Type	Optical dissolved oxygen (DO)	
Range	0 to 20.00 mg/L; 0 to 200.0%	
Resolution	0.01 mg/L; 0.1%	
Response Time at 25° C	FDO 700 IQ T90: <150 seconds T99: <200 seconds	FDO 701 IQ T90: <60 seconds T95: <80 seconds
Minimum Flow Rate	0 - none required	

FDO ▼

TriOxmatic ▼

FDO - DO Optical

- No calibration required
- No electrolyte, membrane or interferences
- Accurate measurements with 45 degree angle cap - no bubble interference
- Extremely long sensor cap life; factory calibrated
- Class I, Division 2 rated option (groups A, B, C, D, T6) when used with MIQ/BB1
- 2-year warranty on cap and probe

Intelligent sensor cap with memory chip for calibration data

TriOxmatic - DO electrochemical

- SensLeak function monitors electrolyte and membrane
- No break-in period or long-term drift
- Digital sensors store calibrations
- 2-year warranty

TriOxmatic Sensor Specifications

Operating Temperature	32 to 140°F (0 to 60°C)		
Sensor Type	Electrochemical dissolved oxygen		
Range	700 IQ (700 IQ SW) 0.0 to 60.0 mg/L 0 to 600%	701 IQ 0.00 to 20.00 mg/L 0.0 to 60.0 mg/L 0.0 to 200.0% 0 to 600%	702 IQ 0 to 2000 µg/L 0.00 to 10.00 mg/L 0 to 110%
Resolution	0.1 mg/L 1%	0.01 mg/L 0.1 mg/L 0.1% 1%	0.001 mg/L 0.01 mg/L 0.1%
Response Time at 25° C	T90: 180 seconds	T90: 30 seconds T99: 90 seconds	T90: 30 seconds T99: 110 seconds
Minimum Flow Rate	0.05 m/s (1.9 in/sec)	0.23 m/s (9 in/sec)	0.3 m/s (11.8 in/sec)

ysi.com/FDO ysi.com/TriOxmatic

IQ SensorNet Sensors
VARiON, AmmoLyt & NitraLyt

Ion Selective Electrode (ISE) Sensors

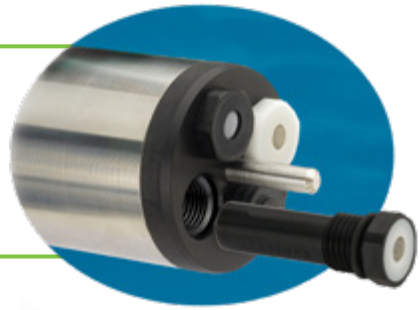
VARiON -
Ammonium and Nitrate,
Potassium or Chloride

- Single- or dual-measurement of ammonium and nitrate; compensation for potassium or chloride
- Factory calibrated & stable slope
- Compensation electrode; prevents interferences and improves accuracy
- Stable reference system holds calibration providing reliable measurements and extended electrode life
- 2-year sensor warranty; 1-year electrode warranty; 18-month typical working life

AmmoLyt - Ammonium, Potassium
NitraLyt - Nitrate, Chloride

- Ammonium or nitrate measurement with continuous potassium or chloride compensation
- Factory calibrated & stable slope
- Compensation electrode; prevents interferences and improves accuracy
- Stable reference system holds calibration providing reliable measurements and extended electrode life
- 2-year sensor warranty; 1-year electrode warranty; 18-month typical working life

ISE probe with individually replaceable electrodes, lowers consumable costs



VARiON, AmmoLyt & NitraLyt Sensor Specifications

Operating & Compensation Temperature Range	32 to 104°F (0 to 40°C)	
Sensor Type	Ion Selective Electrode Ammonium (VARiON or AmmoLyt)	Ion Selective Electrode Nitrate (VARiON or NitraLyt)
Range/Resolution VARiON	NH_4-N: 1 to 2000 mg/L / 1 mg/L 0.1 to 100 mg/L / 0.1 mg/L NH_4: 1 to 2580 mg/L / 1 mg/L 0.1 to 129.0 mg/L / 0.1 mg/L K+: 1 to 1000 mg/L / 0.1 mg/L	NO_3-N: 1 to 1000 mg/L / 1 mg/L 0.1 to 100 mg/L / 0.1 mg/L NO_3: 5 to 4500 mg/L / 1 mg/L 0.5 to 450.0 mg/L / 0.1 mg/L CL-: 1 to 1000 mg/L / 0.1 mg/L
pH Range	4 to 8.5 pH units	4 to 11 pH units
Measuring Accuracy	±5% of measured value ±0.2 mg/L in standard solution	

ysi.com/VARiON ysi.com/AmmoLyt ysi.com/NitraLyt

IQ SensorNet Sensors
UV & UV/VIS

IQ SensorNet UV and UV/VIS sensors are optical-based, reagentless spectrophotometers built into rugged, corrosion-resistant probes that are designed to measure accurately in harsh applications. Single and broad spectrum options available. The spectral sensors scan 256 wavelengths per measurement for increased accuracy and single wavelength sensors with turbidity compensation are available for NOx and UVT-254 (SAC) measurements. All UV/UV-VIS sensors utilize UltraClean™ ultrasonic technology to prevent fouling and lower maintenance requirements.

All sensors:

- Ultrasonic cleaning with UltraClean™ technology prevents fouling and lowers maintenance requirements
- Built-in airholes for added air cleaning in high fouling applications
- No reagents required resulting in reduced operational costs and less impact on the environment
- Durable, long-lasting materials - titanium and PEEK will hold up in the toughest conditions
- Immediate detection of organic loads without reagents
- 2-year sensor warranty
- IP68

Spectral Sensors - NitraVis (TSS), CarboVis (TSS), NiCaVis (TSS), NitraVis NI, NiCaVis NI

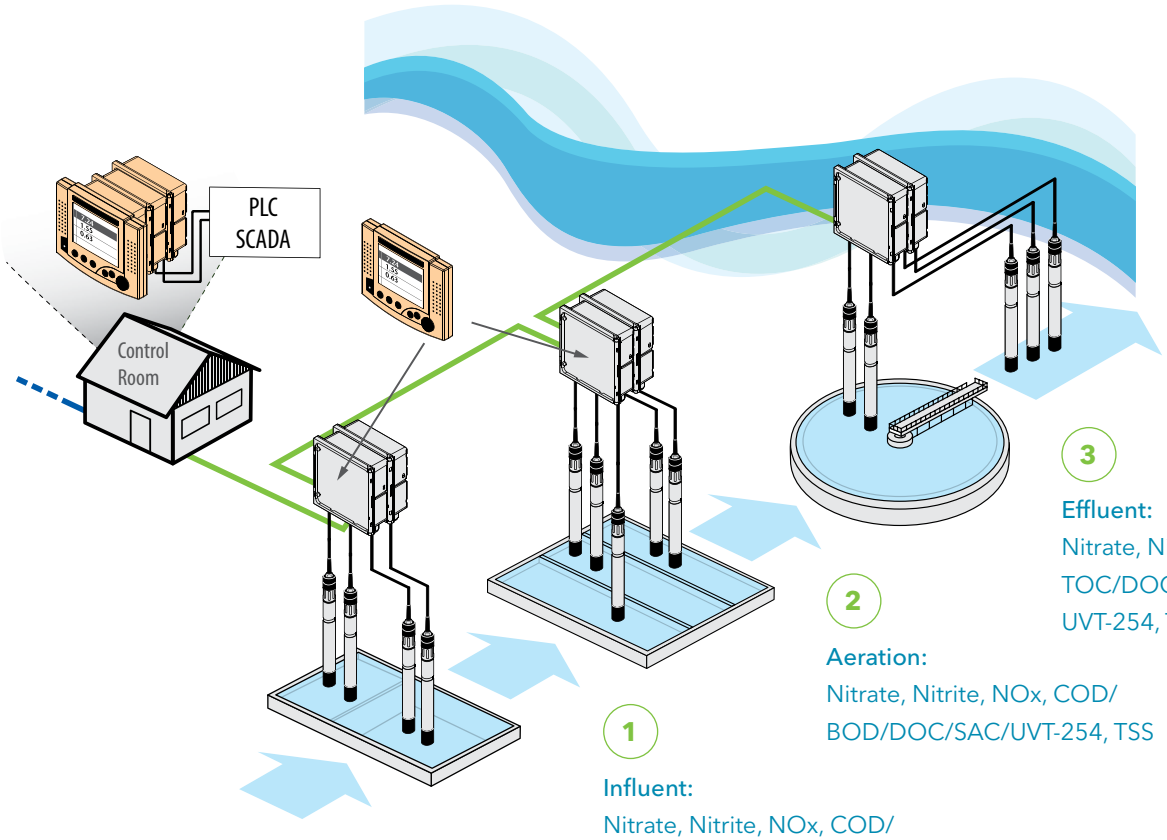
- UV and UV/VIS sensors with 256 wavelength scan
- Scanning 256 wavelengths results in higher accuracy and better compensation for interferences
- Factory calibrated per location in the process (influent, aeration, effluent)
- User calibration possible for improved accuracy
- Ability to differentiate between Nitrate and Nitrite concentrations (on NI sensors only)
- Display up to five parameters depending on the application
- Calculated parameters: COD, TOC, BOD, Nitrate, Nitrite, TSS (depending on sensor)

Single Wavelength - UVT-254, NOx

- Turbidity compensation
- Regulate and control UV disinfection with UVT-254
- Correlated parameters: COD, TOC, BOD, DOC from UVT-254 (SAC) measurement
- Monitor nitrification/denitrification process with NOx

UltraClean TECHNOLOGY

ysi.com/UVT-254 ysi.com/NOx



1

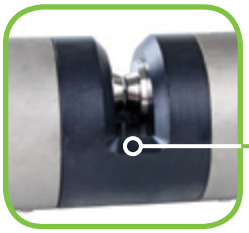
Influent:
Nitrate, Nitrite, NOx, COD/
TOC/DOC/BOD/SAC/
UVT-254, TSS

2

Aeration:
Nitrate, Nitrite, NOx, COD/
BOD/DOC/SAC/UVT-254, TSS

3

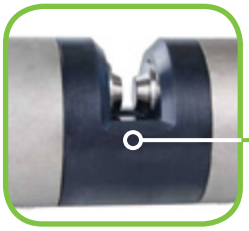
Effluent:
Nitrate, Nitrite, NOx, COD/
TOC/DOC/BOD/SAC/
UVT-254, TSS



1 mm

701
Optimal for influent and aeration (higher concentrations)

Sensors available in two gap sizes for higher and lower parameter concentrations



5 mm

705
Optimal for effluent (lower concentrations)

Spectral Sensors at a Glance

Sensor \ Parameter	COD/TOC/DOC/ BOD/SAC/UVT-254	Nitrate	Nitrite (optional for NitraVis)	TSS (optional for CarboVis/NitraVis)
CarboVis 1 2 3	•			•
NitraVis (NI) (TSS) 1 2 3		•	•	•
NiCaVis (TSS) 3	•	•		•
NiCaVis (NI) 1 2 3	•	•	•	

Online monitoring of the nitrate concentration at critical locations provides the information needed to achieve the three objectives for a denitrification control system:

1. Meet discharge limits for nitrogen
2. Maximize use of wastewater COD
3. Minimize the addition of external carbon

IQ SensorNet Sensors

Alyza Analyzers

Alyza IQ analyzers are the reliable, low-maintenance solution for wastewater monitoring and control. Easy to maintain, the Alyza PO4 and NH4 instruments are cabinet-style, wet chemistry analyzers with built-in sample delivery systems. Available in single- or dual-channel versions, featuring self-cleaning and calibration for dependable measurements, Alyza uses very little reagents, lowering your cost per measurement.

Alyza IQ Features

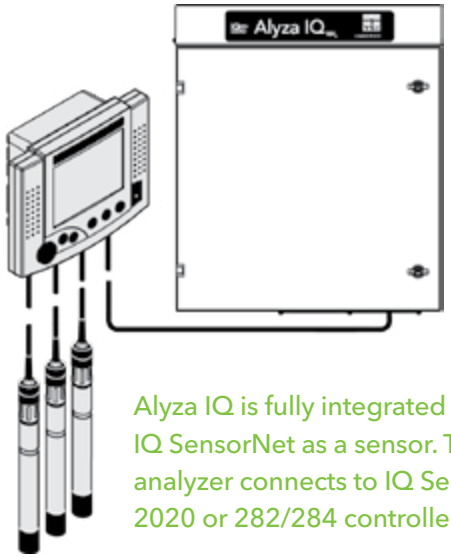
Parameters:
Ammonium or Orthophosphate - instrument dependent

- Extremely low reagent consumption - 5 µL (PO4) or 15 µL (NH4) per measurement
- Connects to IQ SensorNet controllers 2020 and 282/284 (provides 10W power)
- Easy installation - analyzers can be installed directly at the basin
- 1- or 2-channel versions; 2-channel allows for sampling from two locations
- Simple service - reagent bag design makes replacing reagents easier and safer than ever
- Optimized user interface and self-diagnostics
- 1- or 2-point automatic calibration at user-defined intervals
- High accuracy at low measuring ranges
- Minimum maintenance with automatic cleaning

Filter Membrane Module
With premounted membrane

Long-life Reagent
Long-lasting no-drip replacement pouches are easier and safer to replace.

Networking & Integration



Alyza IQ is fully integrated into the IQ SensorNet as a sensor. The new analyzer connects to IQ SensorNet 2020 or 282/284 controllers.

Alyza IQ Specifications

Model	Alyza IQ NH_4 (Ammonium)	Alyza IQ PO_4 (Orthophosphate)
Measurement Method	Berthelot method (Indophenol method)	Moybdate-Vanadate method (Yellow method)
Measurement Range	Two measuring ranges	Measuring range is instrument dependent
	NH_4 MR1: 0.02 to 4.00 mg/l NH_4-N Displayed: 0.00 to 4.00 mg/l NH_4-N Resolution: 0.01 mg/l NH_4-N Accuracy: ± 3 %, ± 0.02 mg/l	**PO_4 – 111/112** MR1: 0.02 to 15.00 mg/l PO_4-P Displayed: 0.00 to 15.00 mg/l PO_4-P Resolution: 0.01 mg/l PO_4-P Accuracy: ± 2 %, ± 0.02 mg/l
	NH_4 MR2: 0.10 to 20.00 mg/l NH_4-N Displayed: 0.00 to 20.00 mg/l NH_4-N Resolution: 0.05 mg/l NH_4-N Accuracy: ± 3 %, ± 0.10 mg/l	**PO_4 – 121/122** MR2: 0.2 to 50.0 mg/l PO_4-P Displayed: 0.0 to 50.0 mg/l PO_4-P Resolution: 0.05 mg/l PO_4-P Accuracy: ± 2 %, ± 0.2 mg/l
Sample Streams/Channels	1- and 2-channel versions available	
Sample Time Intervals	1 channel: 10 minutes; 2 channel: 20 minutes	1 channel: 5 minutes: 2 channel: 10 minutes
Cleaning	Automatic cleaning with cleaning solutions	
Calibration	Automatic 1– and 2-point calibrations	
Operational Temperature **Sample Temperature**	-4 to 104 °F (-20 to +40 °C) 39 to 104 °F (4 to 45 °C)	
pH range	5 ot 9	
Warranty	2 year warranty	
Solids Content	< 6 g/l before filtration	

ysi.com/NH4 ysi.com/PO4

IQ SensorNet Sensors
IFL Sludge Level Sensors

The IQ SensorNet IFL is an ultrasonic interface level sensor. During the wastewater treatment process, the measurement of the interface level (sludge level) between liquids is important for process control. The IQ IFL 700 provides continuous sludge level data to assist with operational efficiency improvement decisions.

IFL 700 Sensor Specifications

Measuring Method	Ultrasonic echo measurement
Measuring Range	0.4 to 15 m (1.3 to 49.2 ft)
Resolution	0.01 m (0.03 ft)
Accuracy	0.1 m (0.3 ft)
Signal Filters	Yes
Flow Speed	Maximum 4 m/s (13.1 ft/s)
Immersion Depth	Minimum 5 cm (1.9 in); maximum 3 m (9.8 ft)
pH Range	4 to 12 pH units
Temperature Range	32 to 122˚F (0 to 50˚C)

IQSN 2020 3G Controller showing IFL measurements

IFL 700 - Sludge Level Sensor

- Smart signal filters out interferences like sludge rakes for reliable sludge level measurements all the time
- Non-contact, maintenance-free automatic wiper option available
- Factory calibrated

You Have a Choice
Only YSI

The modular YSI IQ SensorNet water quality monitoring and control system is a complete sensor network for a variety of application needs. This powerful system lets you easily add more modules or sensors at any time for continuously measuring water quality anywhere in your facility for complete process control. In addition, you also receive these exclusive benefits, as provided only by YSI.

Benefits of IQ SensorNet

- UltraClean™ ultrasonic cleaning integrated into turbidity, TSS, UV and UV-VIS sensors
- One cable for power and communication - send measurement data back to control room via IQ SensorNet cable - no need for multiple cable drops and conduit runs.
- 2020 3G controller display connects to any module or network
- 3-year warranty - controllers and modules
- 2-year warranty - sensors
- Controller, modules, and sensors can be placed anywhere in the network - flexible configuration
- Measure up to 20 parameters per network
- Expand network easily without additional engineering and design work
- Smart technology recognizes and displays sensors
- Network outputs analog and digital communication signals
- Universal sensor cable with detachable sensors
- USB electronic key function 'locks' and saves system settings from accidental changes
- No calibration required on most sensors; automatic drift compensation
- Measures DO, conductivity, temperature, pH, ORP (Redox), nitrate, nitrite, NOx, soluble and total for COD and SAC, UVT-254, orthophosphate, sludge level, ammonium, potassium, turbidity, TSS, BOD, DOC, TOC, chloride
- Optical DO sensor is immune to bubble interference with unique angled design
- Back-up controller function and backup power provides system redundancy

IQ SensorNet
Mounting Options & Air Cleaning

Rail Mount
Controller and modules with rail mounts, shown with sun shield.

Handrail Mount
Sensor immersion handrail mount and controller handrail mount with sun shield

SensoClean Swing Mount
Swing mount shown with rail mounting stand; also available with floor and wall mounting stands

SensoClean Swing Mount
Shown with single sensor holder

Dual Sensor Holder

Triple Sensor Holder

IQ SensorNet offers a variety of mounting options to suit individual installation needs. Additional mounting options are available for controllers, modules and sensors, including panel and wall mounting, DIN rail mounting, horizontal chain mounts, vertical rail mounts and more. Our experts can help you select the right mounting hardware for your facility.

Insertion Mount

Pressurized and retractable;
2 bar or 10 bar overpressure

Float Mount

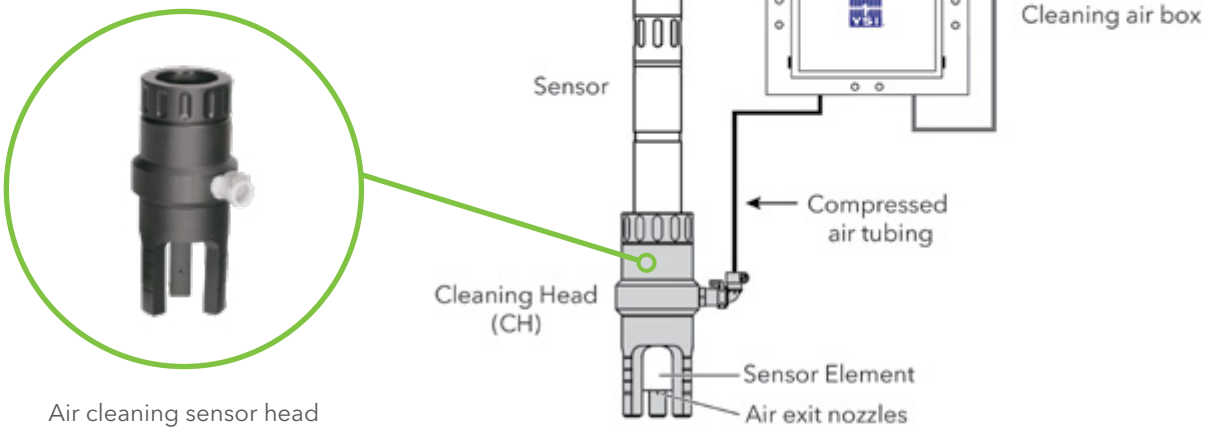
Available as a single,
or dual sensor mount

In-pipe Mount

For 2-inch PVC; available with and without cleaning connections

Air Cleaning

Optional air cleaning.
One, two and four channel cleaning air boxes available



Air cleaning sensor head

Xylem |'zīləm|

1) The tissue in plants that brings water upward from the roots;
2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to www.xylem.com

xylem
Let's Solve Water

YSI, a Xylem Brand
1725 Brannum Lane
Yellow Springs, OH 45387
+1.800.765.4974 (US)
info@ysi.com
YSI.com

ECO FRIENDLY PAPER

Printed on recycled paper in USA

YSI.com/IQSN

W60-05 | 0519